The Science: Transdermal Testing

As alcohol is ingested orally, it is absorbed into the body's blood and distributed via the circulatory system. Alcohol is eliminated from the body by two mechanisms: metabolism and excretion. Metabolism accounts for the removal of greater than 90% of the alcohol consumed, removing it from the body via oxidation of the ethyl alcohol molecule to carbon dioxide and water. The remaining alcohol is excreted unchanged whenever water is removed from the body, through breath, perspiration, and saliva. Although excretion accounts for less than 10% of eliminated alcohol, it is significant because unaltered alcohol excretion permits an accurate measurement of alcohol concentration in the body using both breath analysis and insensible skin perspiration.

Transdermal alcohol testing measures insensible perspiration, which is the constant, unnoticeable excretion of sweat through the skin. The average person will emit approximately one liter of insensible perspiration each day.

The SCRAM System: Three Integrated Components

SCRAM Bracelet

Weighing only 8 ounces, the patented SCRAM Bracelet is strapped on a subject's ankle and worn 24/7. The Bracelet is tamper-resistant, water-resistant, and designed to withstand daily wear and tear. The SCRAM Bracelet has two separate parts:

The first bracelet component contains a sensor pack that measures ethanol vapor as it migrates through the skin to determine BAC. The measurements are on a pre-determined schedule that is customized by the monitoring authority.

The second bracelet component contains electronics for tamper detection and system control, as well as collecting, storing, and transferring data via an RF link to the modem. A tamper-detection strap acts as an electronic link between the two components and secures the bracelet to the client's ankle.

Subjects know that the SCRAM Bracelet will be sampling at least once per hour. Supervising agencies can set up and modify the testing schedule based on the individual needs of each subject. Every reading is date-stamped, time-stamped, and stored in a memory chip within the SCRAM Bracelet until it is transmitted, via the SCRAM Modem, to SCRAMNET. If the bracelet detects alcohol, it automatically begins sampling every 30 minutes until alcohol is no longer present. The bracelet will also attempt to communicate with the modem after each test.

SCRAM Modem

The easy-to-connect SCRAM Modem is placed in the subject's home. At a predetermined time each day, the subject is required to be in the same room as the SCRAM Modem, triggering the SCRAM Bracelet to "communicate" with the SCRAM Modem. The SCRAM Modem will retrieve all available data from the SCRAM Bracelet. In the event of a positive reading or a tamper alarm, the bracelet will immediately begin looking for the SCRAM Modem, and the data will upload as soon as the subject is within range.

The SCRAM Bracelet communicates with the modem via a proprietary 900 MHz radio frequency communications link. After the SCRAM Bracelet transmits its stored data to the SCRAM Modem, the modem sends all data to SCRAMNET via a standard telephone line in the home, which forwards to a private, secure telephone network. The SCRAM Modem communicates alcohol readings, tamper alerts, and diagnostic data to SCRAMNET, and in turn, SCRAMNET uses the SCRAM Modem to download monitoring and reporting schedules to the SCRAM Bracelet.

SCRAMNET

SCRAMNET is a web-based application managed and run by AMS and hosted by IBM Global Services. SCRAMNET is accessed via the Internet using standard web browsers, so the supervising agency can easily control the testing, synchronization, and reporting schedules for each individual subject and can have round-the-clock access to all subject data via SCRAM's easy-to-use application. The Company designed and built SCRAMNET so that agencies can cost-effectively manage and monitor thousands of clients without incurring costly software installations and upgrades or IT support.

During the course of each day, SCRAMNET will notify the supervising authority of any possible alcohol readings, tamper alerts, or equipment malfunctions, so that agencies can quickly respond to problem offenders.